saliva, mucilage, or white of egg. Dupuytren's arsenical powder consisted of from one to five or six parts of arsenious acid, mixed with a hundred parts of calomel. The caustic of M. Manec, which is extensively employed in France at the present day, is formed of one part of arsenious acid, seven or eight parts of cinnabar, and four parts of burnt sponge, formed into a paste with a few drops of water.

"One disadvantage connected with the topical use of arsenic as a caustic is the great amount and duration of local pain and irritation which it often produces. M. Lebert, who has had repeated occasion, as he tells us, to witness and watch the successful employment of Manec's arsenical paste by M. Manec himself, and who believes this caustic to be the best yet suggested, nevertheless states, that when used as an escharotic the immediate action of arsenic is 'one of the most painful means in surgery. Already,' says he, 'at the end of some hours violent pains commence in and all around the part, tumefaction at first, and subsequently an erysipelatous-like inflammation speedily succeed the pains, and it is only towards the end of five, six, or eight days that this general and extensive inflammation begins to diminish. During all this time,' he adds, 'the sufferings are sufficiently great to deprive some patients of all rest and sleep, and ten or fifteen days may elapse before these complications disappear.'—*Traité Pratique des Maladies Cancereuses*, page 646.

"But a still graver objection exists to the use of arsenic as a caustic, viz., the danger of its absorption into the system, and of its subsequent action as a poison upon the patient, particularly when, as an escharotic, it is applied either too frequently or too freely to a surface of any considerable extent. Besides, there is singular uncertainty in the effects of arsenic when thus locally applied. A patient of Professor Roux's was fatally poisoned by the application, for a single night, of an arsenical paste containing four per cent. only of arsenic, to a small mammary ulcer only one and a half inch in diameter. Numerous instances have been observed in which vomiting, diarrhœa, colic, and other symptoms of arsenical poisoning have followed the external application of arsenical preparations. 'Its use,' says Dr. Pereira, 'is always attended with some danger.' Sometimes the patient has, like Roux's, died after its topical application as a caustic; and with all the symptoms that follow the internal administration of the poison. Medical literature has on record a large number of such fatal cases. In speaking of the occasional danger attendant upon the local external use of arsenic as an escharotic in cancer, Sir Benjamin Brodie observes, 'An old medical practitioner, whom I knew in the early part of my professional life, informed me, that it had fallen to his lot to see many of Miss Plunkett's patients, and that after the application of her caustics, *many* of them died, from what seemed to be inflammation of the bowels.'—*Lectures on Various Subjects in Pathology and Surgery*, page 335."

---

14. *Chloride of Zinc as a Caustic.* By Prof. SIMPSON.—This preparation of zinc appears to have been first used surgically by Dr. Papenguth, of St. Petersburg, who recommended the application of a solution of it as a lotion for scrofulous ulcers and fistulæ. As an escharotic, in the treatment of malignant and semi-malignant ulcers and deposits, it was subsequently employed by Professor Hancke, of Breslau; and afterwards still more extensively, and for a time as a secret remedy, by Dr. Canquoin, of Paris. It was specially urged upon the attention of English surgeons by the writings of Dr. Alexander Ure; and during the last ten or twenty years it has been very frequently used in this country. It will only act upon an open or exposed surface, and not when the epithelium is entire. It is, however, a very effective, valuable, and safe escharotic, killing the morbid tissues to which it is applied to a depth corresponding with the thickness of the layer of chloride that is superimposed, and rarely or never being followed by any serious constitutional disturbance or disorder from the local absorption of the drug. Some degree of fever, however, according to Canquoin, occasionally follows the application of chloride of zinc, and, indeed, of all other caustics, when the cauterization is extensive. Professor Macfarlane states, that in two cases under his care there occurred both fever and severe gastro-enterite, which he attributed to the action of the

drug. The principal drawback, however, to its employment is its great tendency to deliquesce and spread; and in order to prevent any inconvenience or evil effects from this property, it is generally recommended, immediately before its application, to work the chloride up into a paste with flour and water, or gypsum and water, in quantities varying according to the strength of the escharotic that may be required; the usual proportions being one part of the chloride to two, three, or four parts of the flour or gypsum.

Besides the chloride of zinc, other chlorides have sometimes been employed as caustics, as the chlorides of antimony, gold, platinum, etc. Of late years Professor Landolfi, of Naples, has employed extensively, in various hospitals in Europe, a compound of chlorides as escharotics; and, according to some reports, with much success. His caustics consist of varying quantities of chlorides of zinc, antimony, and gold, combined with chloride of bromine; and worked into pastes with powdered liquorice root. Of these ingredients the most novel, and the one to which Landolfi attaches most importance, is chloride of bromine. He sometimes uses it alone as a fluid caustic. There are two inconveniences connected with its employment, either when used by itself or in combination: 1. The caustic is liable to spread, and the neighbouring parts must be properly protected from its action by being well covered with cloths or bandages immersed in appropriate ointments. 2. It requires to be formed immediately before its application; and the fumes that arise are so stifling as to prevent this being done within doors. On this last point a recent writer, Mr. Gamgee, who has watched and witnessed Landolfi's own practice, observes: "In consequence of the very intensely irritating power of the fumes emitted from the chloride of bromium, care must be observed in dealing with it. Thus, the paste should be prepared in the open air, with the mouth covered: and during, and for a short time after its application, the patient should sit near an open window."—*Researches in Clinical Surgery*, p. 87. *Med. Times and Gaz.*, Jan. 17, 1857.

---

15. *Sulphate of Zinc as a Caustic.*—Prof. SIMPSON in a recent paper (*Med. Times and Gaz.*, Jan. 17th, 1857), calls attention to a caustic which he has used often during the past year and which is free from the objections to which other caustics are liable. This consists of sulphate of zinc, applied either in the form of powder, or strong paste, or ointment to the affected part.

"Sulphate of zinc is a drug extensively and daily employed by medical men in solution, in the form of collyria, of lotions, of injections, etc. No writer, however, has, as far as I am aware, hitherto pointed out that when applied as a fine *powder* to an open and diseased surface, sulphate of zinc acts as one of our most powerful and manageable caustics. In using it for this purpose I have always employed it dried or anhydrous, and finely levigated. Sometimes I have applied it in the form of a simple powder, sometimes in the form of a paste made with glycerine, and sometimes as a strong ointment. To work it into a paste, about one drachm of glycerine to an ounce of the dried powder is required; and in this form it keeps for any length of time ready for use. A caustic ointment may be formed by pounding together two drachms of axunge with an ounce of the dried sulphate of zinc.

"When used in the form of a powder, paste, or ointment to an open or ulcerated surface, the part to which it is applied is rapidly destroyed to a depth corresponding to the thickness of the superimposed layer. The slough, eschar, or devitalized part is of a white colour, and usually separates on the fifth or sixth day, leaving behind it (if the whole morbid tissue is removed) a red, granulating, healthy, and rapidly cicatrizing wound. I have sometimes seen the edges of the wound already more or less puckered and contracted at the time of the separation of the eschar. The white slough or eschar itself shows no tendency to chemical or putrefactive decomposition, but is firm in texture and free from taint or odour. If we apply the sulphate of zinc in any case of malignant or semi-malignant ulcer or deposit, it will require to be repeated immediately after the first or preceding eschar separates, provided any yellow or unhealthy tissue remain at the bottom or in the sides of the wound, or if the surrounding hardness is not yet quite dispelled. After the last eschar is re-